

REMARKS

Upon entry of this Amendment, claims 1 and 3-35 are all the claims pending in the application. Claims 24-35 have been added and claim 2 has been canceled. Claims 12-23 are withdrawn from consideration as being drawn to a non-elected invention. Claims 1-6 and 8-11 presently stand rejected. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

In regard to the claim rejections, page 2 of the office action indicates that claims 1-11 are rejected under 35 U.S.C. § 112, second paragraph; Claims 1, 3 and 4 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ishihara (USP 5,946,100); and claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishihara. Also, claims 5, 6 and 8-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Disclosed Art ("APA") in view of Ishihara. For the reasons set forth below, Applicant respectfully traverses the rejections and requests favorable disposition of the application.

Argument

§112 Rejection

Although the Examiner has not specifically stated in the advisory action dated April 26, 2004, it appears that the rejection under 35 U.S.C. § 112, second paragraph, has been obviated in view of the further explanation provided by Applicant in the Request for Reconsideration filed on April 13, 2004. Confirmation that the 112 rejection has been overcome is respectfully requested on the record. If the §112 rejection is not overcome, clarification as to the basis of the rejection is requested.

Prior Art Rejection

In regard to the prior art rejections of the claims, Applicant submits that the Examiner has failed to set forth a *prima facie* case of anticipation. In particular, it is clear that the Examiner is relying on the principles of inherency with regard to the single prior art reference to Ishihara. This is known since the Examiner has not even attempted to show where within the asserted prior art reference the requirements of the equation recited in the claims are shown. Instead, the Examiner has merely asserted that the recited equation “is satisfied” by the structure disclosed in Ishihara. To support the assertion, the Examiner provided a hand-drawn figure and a hand-written “derivation” of the recited equation required by the claims.

However, the Examiner has failed to provide any explanation whatsoever regarding how the alleged derivation applies to the asserted prior art reference. In other words, the Examiner has not demonstrated that the allegedly derived equation is an absolute consequence of the structure disclosed in Ishihara. As is well settled, when an Examiner relies on a theory of inherency, “the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990). Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (Bd. Pat. App. & Int. 1986). Here, the Examiner has failed to provide any such reasoning and, thus, the Examiner has not met his/her burden of establishing a *prima facie* case of anticipation. Moreover, the Examiner merely asserts that his/her “derivation” is born out of the “principle of the geometric optics”. However, the Examiner has not provided any support at all for the derivation. In effect, the geometries used by the Examiner to purportedly derive the

equation of claim 1 do not apply to the geometries of the optical elements in Ishihara. To the extent the Examiner relies on Figs. 6 and 7 of Ishihara, Applicant respectfully requests that the Examiner demonstrate where the variables t , R and θ apply to the optical elements disclosed. Absent such a conclusive showing, the anticipation rejection is not supported and is, thus, improper.

In any event, in order to advance prosecution of the application and without acquiescing in the Examiner's rejections, Applicant has amended independent claims 1, 5, 6, 9 and 11 to further distinguish over the prior art of record. Specifically, independent claims 1, 5, 6, 9 and 11 are amended to incorporate a diffuse reflecting layer which was the subject matter of claim 2 (now canceled), to define that the diffuse reflecting layer is formed on a surface of a light shield layer. These claims were further amended to define that light such as light from the light source is launched into a plurality of light entrance areas and collimated light is issued from a plurality of microlenses. Applicant submits that the prior art of record fails to teach or suggest the recited combination of features and, thus, the claims are allowable for at least this reason.

Additionally, Applicant provides the following discussion regarding the differences between the invention set forth in the present claims and the prior art.

In particular, the optical element disclosed in the asserted reference to Ishihara has the microlens array 17 (Note: 6 in FIG. 6) in which a large number of microlenses are formed on the top surface of a glass substrate and the pinhole array 19 (Note: 7 in FIG. 6) in which pinholes are formed by photolithography in the light-shielding film vapor deposited over the bottom surface of the glass substrate corresponding to a large number of microlenses.

Accordingly, a first distinction between the optical element of Ishihara and the collimating plate of the claimed invention is that in the disclosure of cited reference Ishihara, although the antireflection film (anti-reflective layer) is provided also on the surface of the microlenses, it is provided between the glass substrate and the light-shielding film on the surface opposite to the microlenses (the bottom surface) of the glass substrate and although the pinholes are provided in the light-shielding film, the pinholes are not provided in the anti-reflection film. In comparison, in the collimating plate of the claimed invention, not the anti-reflective layer but the diffuse reflecting layer is provided on the upper surface of the light shield layer formed on another surface of the lens substrate reverse to the plurality of microlenses and neither the diffuse reflecting layer nor the light shield layer is provided on the light entrance areas. For this additional reason the claims are patentable over the prior art of record.

Furthermore, in the optical element comprising the microlens array 17 and the pinhole array 19 disclosed in the cited reference of Ishihara, the direction that light passes through is bidirectional, that is, the light from light source enters from microlens array 17 (See FIG. 5) and is emitted from the pinhole array 19, and the reflected light from object 0 enters from the pinhole array 19 and is emitted from the microlens array 17. In comparison, in the collimating plate of the claims, light from light source and reflected light by inner surfaces of the lamp housing are launched into the light entrance areas and the collimating light is issued from microlenses and thus the direction that light that passes through is uni-directional. For this additional reason, the claims are patentable over the prior art of record.

Therefore, in accordance with the invention disclosed and claimed in the present application, it is clear that the collimating plate of the present invention increases the efficiency

of light utilization thereby issuing a collimated light having a high luminance since the diffuse reflecting layer of the collimating plate is formed on the side in which light is incident, for example of the side of light source, for example, see page 15, lines 13-23 of the specification, and it is an opposite function to the anti-reflection film (antireflective layer) of the optical element disclosed in the cited reference to Ishihara.

Patentability of New Claims

For additional claim coverage merited by the scope of the invention, Applicant has added new claims 24-35. Applicant submits that the prior art does not disclose, teach, or otherwise suggest the combination of features contained therein.

New claims 24 and 25 recite protrusions corresponding to the microlenses are provided on the side of another side of lens substrate, the end surface of each of the protrusions becomes each of the light entrance areas, and the light shield layer and the diffuse reflecting layer are embedded among the protrusions.

New dependent claim 26, which depends from claim 1, is added to particularly define an embodiment that additionally comprises a light diffusing plate comprising an anti-reflective layer. As disclosed, the collimating plate and the light diffusing plate are separately used where appropriate since those two plates are different in function such that the light diffusing plate of the present invention used on viewing side of liquid crystal panel of the liquid crystal display apparatus is provided with the anti-reflective layer instead of the diffuse reflecting layer and its function of the upper layer on the light shield layer is different from the collimating plate. In comparison, the cited reference to Ishihara uses only one optical element at the position that bidirectional light passes through.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Appln. No. 09/782,042

New independent claim 27 and its dependent claims 28-31 recite that the protrusions corresponding to the microlenses are provided on the side of another side of lens substrate and the end surface of each of the protrusions becomes each of light entrance areas with regard to present claim 1 which does not define the diffuse reflecting layer.

Additionally, the limitation of the formula, $Sr \geq 2t \cdot \tan\theta + R$, has been removed from amended claim 1 and has been provided in new independent claims 32 and 35.

Conclusion

In view of the foregoing remarks, the application is believed to be in form for immediate allowance with claims **1, 3-11 and 24-35**, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to **contact the undersigned** at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Kevin M. Barner
Registration No. 46,075

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: May 13, 2004

Attorney Docket No.: Q62085